REMARKS

The foregoing amendments are made in order to place the Application in better condition for examination and to better define the invention. As no new matter is presented with these amendments, it is believed that such amendments may be entered and such action is respectively requested.

Respectfully submitted,
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The main object of this invention is therefore to overcome the abovementioned problems or at least provide the public with a useful alternative by providing improvements whereby the body, nut and gripping member (compression ring) form a preliminary assembly through which can be inserted either a metal or plastic pipe, which is secured by tightening the nut, or removed by unscrewing the nut.

SUMMARY OF THE INVENTION

Therefore in one form of the invention there is proposed a retaining device for a pipe coupling comprising:

a radially deformable housing having an internal bore adapted to receive a pipe therein, said internal bore having an internal surface that includes a plurality of outwardly extending first projections; and

a radially deformable gripping member having longitudinal and parallel axes, and first and second surfaces, said first surface being matingly similar to said housing internal surface, said gripping member including a plurality of apertures adapted to receive said outwardly extending first projections when said gripping member is disposed in said housing internal bore, said gripping member further including a plurality of burst hole projections that extend outwardly from said second surface, each of said burst hole projections having a plurality of walls, at least one of said walls having an orientation that is not parallel to said longitudinal and parallel axes of said gripping member, whereby said burst hole projections substantially restrict longitudinal and rotational movement of said pipe when engaged thereto.

In preference said housing has a generally cylindrical shape.

Preferably said gripping member is fixedly retained within said housing bore.

In preference said gripping member is retained within the housing bore in a snap fit arrangement.

In preference said burst hole projections are aligned in at least one annular row.

In preference said gripping member includes five annular rows of said burst hole projections that extend across said gripping member.

In preference there are at least a first plurality of said burst hole projections have different heights.

In preference said housing comprises a split-ring type housing.

In a further form of the invention there is proposed a pipe coupling wherein a pipe is freely insertable into the coupling, comprising:

a hollow body having external threads and a tapered inner surface;

a nut having internal threads co-operable with said body external thread at a first end and an outwardly converging inner tapered surface at a second end; and

a deformable gripping member assembly having a housing and a gripping member, said housing having an internal port adapted to receive said gripping member therein, said housing port having an internal surface, said gripping member having longitudinal and parallel axes, and first and second surfaces, said first surface being matingly similar to said body internal surface, said gripping member including a plurality of burst hole projections that extend outwardly from said second surface, each of said burst hole projections having a plurality of walls, at least one of said walls having an orientation that is not parallel to said longitudinal and parallel axes of said gripping member,

wherein upon tightening of said nut, said nut tapered inner surface abuts against and exerts a force on said first surface of said gripping member in substantially longitudinal and radial directions to thereby cause said gripping member to be urged both radially and longitudinally into said pipe when said pipe is inserted into said coupling, whereby said gripping member substantially restricts longitudinal and rotational movement of said pipe.

In preference said burst hole projections are aligned in at least one annular row.

In preference said gripping member includes five annular rows of said burst hole projections that extend across said gripping member.

In preference at least a first plurality of said burst hole projections have different heights.

In preference said housing internal surface includes a plurality of outwardly extending projections.

In preference said gripping member includes a plurality of apertures adapted to receive said housing projections when said gripping member is disposed in said housing internal port.

BRIEF DESCRIPTION OF THE PREFERRED EMBODIMENT

The accompanying drawings, which are incorporated in and constitute a part of this specification, illustrate an implementation of the invention and, together with the description, serve to explain the advantages and principles of the invention. In the drawings,

Figure 1	is a central elevational section that shows a pipe end inserted through a sub-assembly comprising a nut, gripping member assembly, sleeve, and gasket and into a socket in the body of a fitting embodying the present invention;
Figure 2	is a similar section showing the configuration of the sub-assembly when the nut is tightened onto the body;
Figure 3	is an exploded perspective view of a gripping member assembly embodying the preset invention including a housing and a metal band;
Figure 4	is an exploded side view of the gripping member assembly of Figure 1;
Figure 5	is a partial perspective view of the metal band illustrating the projections in detail;
Figure 6	is a perspective view of a gripping member assembly, including a grip-ring and a metal band having metal projections, according to a second embodiment of the present invention;

CLAIMS

1. A retaining device for a pipe coupling comprising:

a radially deformable housing having an internal bore adapted to receive a pipe therein, said internal bore having an internal surface that includes a plurality of outwardly extending first projections; and

a radially deformable gripping member having longitudinal and parallel axes, and first and second surfaces, said first surface being matingly similar to said housing internal surface, said gripping member including a plurality of apertures adapted to receive said outwardly extending first projections when said gripping member is disposed in said housing internal bore, said gripping member further including a plurality of burst hole projections that extend outwardly from said second surface, each of said burst hole projections having a plurality of walls, at least one of said walls having an orientation that is not parallel to said longitudinal and parallel axes of said gripping member, whereby said burst hole projections substantially restrict longitudinal and rotational movement of said pipe when engaged thereto.

2. The retaining device of Claim 1, wherein said housing has a generally cylindrical shape.

3. The retaining device of Claim 1, wherein said gripping member is fixedly retained within said housing bore.

4. The retaining device of Claim 3, wherein said gripping member is retained within the housing bore in a snap fit arrangement.

5. The retaining device of Claim 1, wherein said burst hole projections are aligned in at least one annular row.

6. The retaining device of Claim 5, wherein said gripping member includes five annular rows of said burst hole projections that extend across said gripping member.

7. The retaining device of Claim 1, wherein at least a first plurality of said burst hole projections have different heights.

8. The retaining device of Claim 1, wherein said housing comprises a split-ring type housing.

9. A pipe coupling wherein a pipe is freely insertable into the coupling, comprising:

a hollow body having external threads and a tapered inner surface;

a nut having internal threads co-operable with said body external thread at a first end and an outwardly converging inner tapered surface at a second end; and

a deformable gripping member assembly having a housing and a gripping member, said housing having an internal port adapted to receive said gripping member therein, said housing port having an internal surface, said gripping member having longitudinal and parallel axes, and first and second surfaces, said first surface being matingly similar to said body internal surface, said gripping member including a plurality of burst hole projections that extend outwardly from said second surface, each of said burst hole projections having a plurality of walls, at least one of said walls having an orientation that is not parallel to said longitudinal and parallel axes of said gripping member,

wherein upon tightening of said nut, said nut tapered inner surface abuts against and exerts a force on said first surface of said gripping member in substantially longitudinal and radial directions to thereby cause said gripping member to be urged both radially and longitudinally into said pipe when said pipe is inserted into said coupling, whereby said gripping member substantially restricts longitudinal and rotational movement of said pipe.

10. The pipe coupling of Claim 9, wherein said burst hole projections are aligned in at least one annular row.

11. The pipe coupling of Claim 10, wherein said gripping member includes five annular rows of said burst hole projections that extend across said gripping member.

12. The pipe coupling of Claim 9, wherein at least a first plurality of said burst hole projections have different heights.

13. The pipe coupling of Claim 9, wherein said housing internal surface includes a plurality of outwardly extending projections.

14. The pipe coupling of Claim 13, wherein said gripping member includes a plurality of apertures adapted to receive said housing projections when said gripping member is disposed in said housing internal port.